4-8-05 OK x Ent

Amendments to the Claims /Listing of Claims:

Please cancel claims 34 and 38-44. This listing of claims will replace all prior versions, and listings, of claims in the application:

1-6. (Cancelled)

7. (Previously presented) Substantially pure DNA having the protein coding region of the nucleotide sequence shown in Figures 9A, 9B and 9C.

8-34. (Cancelled)

35. (Previously presented) Substantially pure nucleic acid comprising the nucleotide sequence of pPCX49, ATCC No. 67643, or complement thereof.

36. (Previously presented) Cells transformed by the substantially pure DNA of claim 7.

37. (Previously presented) A vector containing the substantially pure DNA of claim 7.

38-44. (Cancelled)

45. (Previously presented) A substantially pure nucleic acid encoding the amino acid sequence presented in Figures 9A, 9B and 9C.

46. (Previously presented) Cells transformed by the substantially pure nucleic acid of claim 45.

47. (Previously presented) A vector containing the substantially pure nucleic acid of claim 45.

48. (Previously presented) A RNA complementary to the substantially pure nucleic acid of claim 45.

I. Objection

Claim 38

The objection to claim 38 under 37 CFR 1.75(c) as allegedly being of improper dependent form has been rendered moot by the cancellation of this claim.

II. 35 U.S.C. §112, 1st Paragraph (Written Description)

Claims 34 and 39-44

The rejection of claims 34 and 39-44 under U.S.C. §112, first paragraph as allegedly containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the art that Applicants had possession of the claimed invention, is respectfully traversed for at least the reasons already of record.

Specifically, Applicants respectfully disagree with the Examiner's assertion that the "specification does not describe a nucleic acid that is encompassed by the claims that does not encode the amino acid sequence presented in Figures 9A to 9C" (Office Action, pages 2-3, bridging paragraph). Contrary to the Examiner's assertion, the specification fully satisfies the written description requirement through disclosure of both a structural description and a functional description of beta2 subunits of neuronal acetylcholine receptors.

The specification provides a structural description of the beta2 subunit through presentation of an exemplary sequence of a beta2 subunit in Figures 9A, 9B, and 9C. Further, the specification describes at least four functional properties (e.g., ability to substitute for muscle beta1 subunit, not binding acetylcholine, etc.) of the beta2 subunit which distinguish it over other subunits of neuronal acetylcholine receptors. Indeed the subject claims require beta2 subunits

defined with reference to both structural requirements and each of four specific functional properties. One of skill in the art would understand that the exemplary sequence of the beta2 subunit provided in the specification, in conjunction with specific functional properties provided in the specification, fully describes the claimed polynucleotides and distinguishes them from other polynucleotides encoding proteins that do not share these attributes. Therefore, it is respectfully submitted that the specification fully satisfies the written description requirement.

However, in order to reduce the issues and expedite prosecution, this rejection has been rendered moot by the cancellation of claims 34 and 39-44 by the present communication.

III. 35 U.S.C. §112, 1st Paragraph (Enablement)

Claims 34 and 39-44

The rejection of claims 34 and 39-44 under 35 U.S.C. §112, first paragraph as allegedly containing subject matter that was not described in the specification in such a way as to enable one skilled in the relevant art to make and/or use the invention is respectfully traversed. It is respectfully submitted that the specification fully enables the claimed invention.

Applicants respectfully disagree with the Examiner's assertion that the specification allegedly "does not provide the guidance that would be needed by an artisan to produce a functional neuronal acetylcholine receptor beta2 subunit protein having other than the naturally occurring amino acid sequence presented" (Office Action, page 3). Contrary to the Examiner's assertion, it is respectfully submitted that an artisan has been fully enabled, based on the functional requirements recited in the claims, the exemplary sequence of the beta2 subunit (presented in Figures 9A, 9B and 9C), and the experimental procedures disclosed in the specification, how to isolate and use polynucleotides which encode a beta2 subunit.

However, in order to reduce the issues and expedite prosecution, this rejection has been rendered moot by the cancellation of claims 34 and 39-44 by the present communication.

III. 35 U.S.C. §112, 2nd Paragraph

Claims 34 and 39-44

The rejection of claims 34 and 39-44 under 35 U.S.C. §112, second paragraph as allegedly failing to point out and distinctly claim the subject matter that Applicants regard as the invention is respectfully traversed. Applicants respectfully disagree with the Examiner's assertion that the terms "high stringency conditions," "beta2," and "alpha2, alpha3, alpha4, alpha5, beta3 or beta4" are allegedly vague and indefinite. Contrary to the Examiner's assertion, each of these terms is well known in the art and/or are clearly described in the specification. Applicants reiterate their traversal of this rejection for at least the reasons already of record.

Specifically, with respect to claims 39-41, Applicants respectfully disagree with the Examiner's assertion that these claims are allegedly vague and indefinite for use of the phrase "under high stringency conditions" (Office Action, page 4). Contrary to the Examiner's assertion, it is respectfully submitted that the phrase "high stringency conditions" is well known in the art and is therefore, neither vague nor indefinite. Applicants previously cited two exemplary articles in support of this assertion (Response mailed March 15, 2004, page 9). These articles support the position that conditions of high stringency are well known to one of ordinary skill in the art and further, that one of ordinary skill in the art would recognize that optimization of those conditions is routine in achieving successful hybridization. Therefore, it is respectfully submitted that one of ordinary skill in the art would readily understand the phrase "high stringency conditions."

With respect to claims 34 and 39-44, Applicants respectfully disagree with the Examiner's assertion that these claims are allegedly vague and indefinite for use of the term "beta2" (Office Action, page 4). Contrary to the Examiner's assertion, it is respectfully submitted that the specification provides a clear description of the beta2 subunit with reference to both structure and function. For example, the amino acid sequence and the DNA sequence of an exemplary beta2 subunit are presented in Figures 9A, 9B, and 9C. Further, functional properties of the beta2 subunit are described in the specification (see the replacement specification at, for example, page 1, paragraph [0003] and page 18, paragraph [0100]). Therefore, it is respectfully submitted that the description of the beta2 subunit provided in the specification supports the assertion that the term "beta2" is neither vague nor indefinite.

With respect to claims 42-44, Applicants respectfully disagree with the Examiner's assertion that these claims are allegedly vague and indefinite for use of the terms "alpha2, alpha3, alpha4, alpha5, beta3 or beta4" allegedly rendering it impossible to determine the metes and bounds of these claims (Office Action, page 4). Contrary to the Examiner's assertion, it is respectfully submitted that the specification discloses properties unique to each of these subunits, thus allowing one of skill in the art to determine the metes and bounds of these claims. For example, as cited previously, exemplary structural properties for each subunit are disclosed. See Figures 18A–18C (alpha2 subunit), Figure 13 (alpha3 subunit and alpha4 subunit), Figures 28A–28C (alpha5 subunit), Figure 23 (beta3 subunit), and Figures 27A–27C (beta4 subunit). It is therefore respectfully submitted that there is more than adequate description of these subunits to allow one of skill in the art to readily determine the metes and bounds of these claims.

However, in order to reduce the issues and expedite prosecution, this rejection has been rendered moot by the cancellation of claims 34 and 39-44 by the present communication.